Energy-absorption buildup factors and specific absorbed fractions of energy for bioactive glasses

ABSTRACT

In the present work, effective atomic numbers Zeff, energy-absorption buildup factors EABF and specific absorbed fractions of energy (Φ) for different bioactive glasses have been calculated in the present work. Geometric-Progression (G-P) fitting method was used for computation of EABF. The computed EABF is used to estimate the values of Φ. It is shown that the EABF and Φ are dependent on Zeff and mean free path. In addition, EABF and Φ were the largest for S4 and S7.The results in this work could be useful in choosing a suitable type of these glasses which in turn are able to resist possible radiation damages at human body and to determine the thickness and shape of the bioactive glasses needed.

Keyword: Bioactive glasses; Effective atomic number; Absorption; Ionizing radiations